

# COMPUTERWORLD

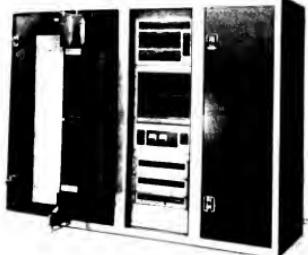
THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

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Lockheed's plug-for-plug compatible mass memory

## Inquiry May Be Pointless Unless FCC Hurries: Bema

By CW Staff Writer

WASHINGTON, D.C. — Unless the Federal Communications Commission acts quickly on the question of common carriers offering data processing services, "the issue is in serious danger of being lost," says Bema, in a manner adverse to those responding to the stated interests, both public and private, of those responding to the FCC's inquiry.

The inquiry was carried in a letter to the FCC from the Business Equipment Manufacturers Association, a party to the inquiry begun in November 1966. Noting that several common carriers had set up data processing units, Bema urged the FCC to gather information on this development from each of the carriers.

"Specifically, we believe that on the basis of each carrier or carrier subsidiary should be requested to respond within a specified time in writing as to its present or contemplated activities that relate to the provision of data or information processes."

### On the Inside

System Stores, Retrieves  
Data in Plain English

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Is ACM Membership  
Really a Bargain?

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ing services," the Bema letter said.

The letter noted that Bema already was on record as opposing allowing common carriers to enter the field because of "the inherent potential for unfair competition."

### Conversational Mode Is Added To IBM's RJE

WHITE PLAINS, N.Y. — Conversational remote job entry (CRJE), IBM's latest addition to its line of remote user programming, with a variable number of tasks (MVT) or its fixed-number brother, MFT.

CRJE supports only IBM 2740, 2741 and 1050 terminals. It permits terminal users to IBM claims 90% of PL/I and Fortran syntax errors during compilation. Conversation stops when the operator releases CRJE, which is essentially an input/output device for data generated by the program, an IBM spokesman said.

Programs can be stored on disk at the central computer in either sequential or conversational mode. Data for object program use is treated as if entered from a local card reader and is not checked for correctness, he said.

Programs can be deleted from memory and run from a console operator, but he can be directed to do so by a message from the remote terminal. Likewise, only he can alter queue priorities. CRJE does not support a re-

(Continued on Page 11)

## Plug-In Mass Memory Designed For Univac 494s, Large 360s

By Peter L. Briggs

CW Staff Writer  
LOS ANGELES — IBM 360 and Univac 494 users can now obtain large capacity storage (extended main memory) of up to two million bytes and an access time of 3.2 microseconds per byte, according to Lockheed Electronics Co.

### Slowed Down for S/360s

The unit can operate at 2 million bytes per byte, Lockheed said, but the performance for the S/360 requires a minimum time of 3.2 microseconds. The unit is plug-for-plug compatible with the S/360 and can be used on any system, including with any one size, the company said.

The device is available in one-half-, one-, and two-million-byte configurations. Lockheed said, and can be freely interfaced with either the Univac or S/360 mainframes.

### Prior Very Competitive

At press time, the company was unable to give a specific price, but the unit will be available both for lease and for purchase with optional maintenance agreements at a price significantly lower than that currently offered by IBM for its own dedicated mainframe.

The IBM 2261 LCS operates at 8 microseconds per byte. The Lockheed device is therefore believed to be about three times faster on the S/360 and four times faster on the Univac mainframe.

The company expects users to make use of this type of device in any situation where large

systems require more main memory, where large files are to be kept in the machine's memory

for high-speed access, or where on-line files are updated and (Continued on Page 11)

## Competitive Maintenance Bids Could Save \$: Report

WASHINGTON, D.C. Savings of almost \$10 million per year might result from the use of competitive bidding within the General Services Administration for the acquisition of maintenance services for its computer equipment, according to a recent survey conducted for the GSA by Boston Computer Group.

"The data processing industry, including the government with 30% of the purchased equipment in the U.S., has no formal maintenance, but receives it." This conclusion is based on the fact that the major portion of the industry still suffers under the "take-it-or-leave-it" type of rates. In the commercial area, very little of the maintenance is performed by the manufacturers, but the percentage is much higher within the GSA. The report found that the industry in the use of third-party maintenance, however, the trend is away from this rather toward it. About one-third of the companies previously using in-house maintenance were planning to discontinue the service, the report found.

**Personnel in Demand**  
The report found only 30,000 maintenance technicians employed by manufacturers and an

additional 1,500 by independents further reinforcing reports on the shortage of personnel. Such personnel are expensive to train (\$100,000 over three to four-month period), and their skills are not generally transferable between vendors, the report said.

### Maintenance Effectiveness

"The percentage of useful time available" in the main part of the report concerned, but the report suggests several other possible techniques to better solve the problem. Nine factors should be measured, including system utilization and demand usage by components and by system; system reliability; time needed for repairs; number and frequency of failures; preventative maintenance needed; performance and redundancy of system and components; and extent of user involvement.

Copies of the publication, "Maintenance of ADP Equipment: A Survey to Identify, Analyze, and Evaluate Alternative Methods," may be obtained from the Business Services Center, GSA, 7th and D Sts., Washington, D.C. GSA will make Xerox copies of the study available for \$150.

## Less Costly Version of 1108 Introduced

By A.B. Williams

PHILADELPHIA — Univac provided a small surprise last week for a world which has been expecting a bigger, faster 1108 — the company announced a less expensive model which slows down but increased the 1106.

Pricewise, it is close to the IBM 360/50, but its performance, based on claimed speed and channel specifications, might make it a closer competitor of the 360/50.

This is not a small machine. Memory is available from 65K 36-bit words to 262K. Cycle time is 1.5 microseconds, add time is 1.5 microseconds per word, with a double-precision, fixed-point add taking 3.167

(Continued on Page 11)



Univac's new 1108 system.

## 5 Time-Sharing Services To Be Evaluated by NIRI

SANTA MONICA — The National Information Research Institute has five time-share services for comprehensive evaluation at its user-oriented symposium on "Comparative Test and Evaluation of Time-Sharing and Remote EDP Services," to be held May 22-27 at the Hotel Bel-Air.

Dr. Ernest J. Schubert, NIRI president, said all five of the services are nationwide, each offering its subscribers hook-ups to regional centers. The services are: Amdahl (IBM 360/65); Call-A-Computer (GE 235); Comshare Southern (SDS, 940); ITT (IBM 360/50); and Tymshare (SDS 940).

The symposium program will be tailored to the needs of the system administrator, or professional person who is considering the pros and cons of time-sharing services, or who has decided to subscribe to some service and is in the process of evaluating a number of different facilities to determine which one is best suited to his particular needs.

### Legal Needs

A feature of the program will be an analysis of the legal aspects of EDP services from the viewpoint of a nonexpert user. This discussion will focus attention on some of the obstacles now standing in the way of a standard contract for time-share services, which could make it easier for users to be assured of their rights. Performance will receive adequate support in areas such as specified overall system reliability, audit trails, and file security.

In keeping with its policy of making a commitment to the interests of its members, as well as those from manufacturers and service vendors, NIRI will pay for all services at commercial rates. This promotes objectivity in conducting and evaluating performance of data processing services being offered and permits NIRI to evaluate other user interface aspects of time-sharing services such as contracts, specifications, and documentation, Dr. Schubert said.

The NIRI staff has developed a comprehensive set of 12 benchmark tests in Fortran and Basic to demonstrate generic operation in business data processing, file management, and scientific computations.

The benchmark tests will be run on each of the five services before

the symposium and the results will be published as Volume III of a "Comparative Test and Evaluation of Time-Sharing and Remote EDP Services." The new volume will be available on the first day of the symposium.

Registration fee for the symposium is \$300, which includes luncheons and a copy of the symposium proceedings.

Further information about the symposium may be obtained from Ana Caba, National Information Research Institute, P.O. Box 3375, Santa Monica, Calif. 90403.

NIRI is a nonprofit institution dedicated to research, education, and certification in all areas of data processing.



### New Mini in Town

A new mini computer, the Tempo I by Tempo Computers of Orange, Calif., neatly packages the central processor, a 4K by 16-bit word memory, and several input/output controllers into a 10-1/2 in. by 17-1/2 in. by 24 in. module. In addition to the ASR 33 Teletype, the computer can be ordered with magnetic tape drives, disk drive, card reader, paper tape punch and reader, modern interface, interval timer, and digital multiplexer, the data processor.

## ITT Data Opens Service Centers® In 4 New Areas

PARAMUS, N.J.—ITT Data Services has expanded its computer time-sharing service network to four additional cities: Denver; Houston; Pittsburgh; and San Diego, Calif.

Regional offices are the newest link in the nationwide data processing service network being built under our multimillion dollar expansion program," said Robert A. Leonard, president of the ITT division.

"The four centers are the newest link in the nationwide data processing service network being built under our multimillion dollar expansion program," said Robert A. Leonard, president of the ITT division.

Addition of the new centers continues operations of the ITT division in the U.S. Each of the new centers is staffed by both technical and sales personnel.



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### DATA COMMUNICATION IDEAS?

#### Talk to Tally

How about low-cost computer-compatible magnetic tape terminals? Tally's got the answer, the Model 4031 Magnetic Tape Send/Receive Terminal. Using 1/4" tape, the unit can independently send or receive data with any other Tally terminal, leasing the computer from time to time. It can also interface with Select 200, 556, or 800 cpi. Features unattended answering and automatic error correction.

Write or call Tally, 1910 Mariner Street, Sunnyvale, California 94086. Phone: 366-654-8786.

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## Fast, Low Cost Computer Can Be Expanded to 56K

By CW Staff Writer

LONDON — An inexpensive, fast (1.5-microsecond add time), 16-bit word processor, with 300,000-word-per-second fixed-head disk has been developed by Computer Technology Ltd. The system, called Modular One, is designed for process and production control, message switching and communications, and for general information acquisition and analysis.

The processor cycles a 16-bit word in 750 nanoseconds, but by overlapping accesses to independent storage modules, the time is effectively reduced to 350 nanoseconds. This yields a processing performance of up to one million instructions per second. The instruction repertoire numbers over 200, the company said.

Main storage is independent 8K modules, up to 56K, any pair or group of which can be connected to provide multiple transfers simultaneous with processing, a spokesman said.

Peripherals include the disks, which have an average access time of 17 milliseconds, he said.

The basic drive has a one-million-word capacity, with 10- to 40-million-word units available for applications which require more storage. The magnetic tape unit starts at 10K words/computer, 36K or 60K words-per-second transfer units, he said.

Communications are based around Teletype 10 cps terminals; graphics around programmed, point-to-point oscilloscopes. Routines for analog-to-digital conversion units are also available.

Manufacturers-supplied software includes Symbol (a macro assembler) and a Fortran compiler. There is also a highly addressable executive for task performance, user communications, storage and peripheral management, program loading and filing, and multiprogramming and distributed processing.

A Modular One processor costs \$4900 (about \$1,800). Each 8K of direct storage costs \$6800 (\$16,300), plus interface channels at \$450 each. Peripheral multiplexors (each of which provides 32 channel positions) go for \$1800.

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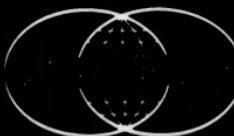
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Brochure on Request



Technicians make final checks of the instrumentation, above, then race driver Darel Dieringer, left, prepares to make a test run. Data from the tire is transmitted to the computer by radio while the run is underway.

## Mobile Real-Time System Gets Test Data by Radio

AKRON, Ohio — Tire, car, and driver performance are being computer-evaluated on-line for racing, racing, and road by the Goodyear Tire & Rubber Co.

Using information from sensors located around the car, within the tires, and on the driver himself, a mobile computer can analyze data and produce graphs and charts showing wear and driver performance on each section of the track. Detailed information about suspension control, driver stability, and vehicle stability are considered to produce these performance figures.

"By recording information while the tires are actually in use, the mobile laboratory gives us data that has never been available to tire manufacturers before," said Jack A. Davison, manager of design research. "By this method we can study the relationship between tires, cars, and drivers, and knowing that information will have better understanding of the development of a tire."

The data collected within the

car is transmitted in radio to the lab. Such items as tire temperature, load and forces affecting the tires, revolution rates, dynamic loads applied to both tires and suspensions, car speeds and engine speeds, and the driver's steering angle are collected and all actions are collected.

"We also obtain important information on the conditions under which the tires, vehicle, and driver operate. This is very important to us in determining the best tire to use after the test has tested the tires as well as the tested results when design testing is completed," Davison said. This type of analysis can lead to much safer tires for ordinary road use as well as tires for racing, therefore saving money and reducing driver inconvenience."

## System Helps Tailor Insurance Policies To the Exact Needs of Each Customer

CHICAGO — A computer is being used to create an insurance policy that doesn't really exist until someone buys it.

The key to this new concept called Compu-U-Term which

permits each prospective life insur-

ance buyer to design his own,

one-of-a-kind policy. Until the prospec-

tive actually buys a policy,

it remains only one of an infinite

number of possible Compu-U-Terms.

The tailored insurance concept was introduced last fall by Continental Assurance Co. and runs on an IBM 360/50. Since then some 100 requests for proposals have been driven in each week. More than \$13 million in Compu-U-Term coverage has been ap-

plied for.

"Compu-U-Term was developed

so that term insurance buyers

can fashion a policy to fit their

needs rather than bend those

to fit the limits of 'packaged' policies," according to David G. Scott, president of Continental.

"This concept breaks all the traditions of the life insurance business by doing away with the standard rate book and replacing it with a fluid structure that can be different for each instance."

Henry D. Deppenreger, executive vice-president and originator of the concept, said the company devoted six and a half man-years of actuarial and programming effort to develop Compu-U-Term.

Under the system, the agent asks

individually for each prospective

buyer such factors as length of

term, premium and benefit

structure, convertibility, renewability, waiver of premium, and

accidental death option.

This data is sent to the computer center here on a special proposal request form. It includes some 25 variable factors which the agent may adjust in designing a customized policy.

For example, the buyer can ask for the amount of coverage benefits in his policy, decrease penny-for-penny with his mortgage liability. Or, on an ascending scale, a tire can be used as well as increase in life coverage at the same pace as the tire wears.

For example, the buyer can ask for the amount of coverage benefits in his policy, decrease penny-for-penny with his mortgage liability. Or, on an ascending scale, a tire can be used as well as increase in life coverage at the same pace as the tire wears.

"And if a prospect wishes," he

continued, "he may have almost any combination of ascending and descending coverage that he desires to meet his requirements."

Deppenreger said there is virtually no limit to the number of proposals which can be generated by the computer. Each change in request data triggers a new proposal which can be produced in about 15 seconds.

This type of service would not be possible using conventional methods, he said, citing one instance in which the company made 20 different proposals in one week for a client seeking \$2 million coverage for a period of four years without Compu-U-Term it would have taken months to prepare the proposals.

## 50,000 Railway Tank Cars Tracked by EDP System

CHICAGO — How do you keep precise track of the location, condition, and availability of more than 50,000 railroad tank cars, each of which may be any place in the United States served by railroads?

The answer, as officials of Union Tank Car Co. see it, rests with a computer-based fleet management system recently

installed by the company.

The electronic control system gives the company the ability to provide overnight response to inquiries or car movements through the use of an IBM 360/30, according to J.W. Van Gorkom, company president.

"Service is the basis of successful operations in the leasing business," Van Gorkom said. "We are able to provide service by rapidly responding to customer inquiries on a 24-hour basis."

The fleet management system, according to W.J.S. Ellis, director of corporate systems and procedures, is the first phase of Union Tank's integrated management information system, which will all be completed in late 1969. The system is dubbed Unipar, for Union information processing and retrieval.

"In brief," Ellis said, "Unipar consolidates our fleet records which formerly were maintained by many different departments."

"When a status inquiry comes in from a sales office, the computer responds with the number, type, and location of cars available for customer use. The net result is faster, more efficient service for the customer."

Primouts tell the company the location, condition, and availability of its 50,000 tank cars.

## System Will Help Count 20 Million Chickens Before They're Hatched

By C.W. Staff Writer

LONDON — Thornber, believed to be the largest producer of egg-laying poultry in the world, with a production target of 20 million day-old chicks this year, has ordered an 800,000 ICL 1901A computer to help count the chickens before they are hatched.

The computer will help Thornber of Mytholmroyd, Halifax, England, to continue to estimate in advance the right quantity of the right kind of chick to be delivered at the right time. Thus accurate forecasting is helped to establish them as a world leader in breeding and producing chickens for egg production. The computer will also be used in connection with its large-scale sheep and pig-breeding programs. The 1901A will replace an existing 8038 computer.

C200,000 on Research

Thornber spends over C200,000 annually on breeding and other research to produce the best possible egg-laying strains.

Each year some 100,000 cross-

bred hens are tested on cooperative farms throughout the country to cover all types of management and environments, and recorded for all the important economic factors (for instance, egg production, egg size, body size, and livability).

As these figures are recorded individually or in small groups of three to four, there is obviously a tremendous number of pieces of information to be handled. Summaries of the records are required on short notice for the selection of both individual and whole varieties.

### Sheep Breeding

Thornber's sheep-breeding program has two major objectives, namely the production of good female lines for commercial sale. Development of the male line, in which growth rate and carcass quality are of primary importance, is carried out by means of progeny testing on selected females, and it is expected that approximately 100 rams will be tested this year.



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# Students Get Career Information By Computer Linked to Telephone

MONTCLAIR, N.J. Some 200 Montclair High School students have begun using an experimental computer-assisted educational and career exploration system, developed by IBM Corp.

It is designed to help them explore the world of work and investigate educational possibilities in a systematic fashion.

As the students use the system during the next year, members of their class will be evaluated by counseling experts from Teachers College, Columbia University. The study is under the

direction of Dr. Donald E. Super, professor of psychology and education.

## Facts Are Comprehensive

Using experimental visual display units linked by telephone lines to a computer in Tarrytown, N.Y., the students have access to a comprehensive library of occupational and educational facts contained in an IBM 360 data processor.

This information, gathered from standard counseling sources, is illustrated by 18,000 color pictures, charts, drawings,

and text stored on reels of motion picture film.

## Details Are In Depth

With these materials at his fingertips, the student is able to identify 110 groups which contain 1600 occupations, 329 of which are in depth, and explore 391 areas of advanced study. He can also obtain details on 1500 colleges and universities.

The student identifies himself to the system, loads the film, receives printed instructions, questions, and images that relate



Student operates visual display unit linked to a computer, which projects material relative to her career interest.

to his interests. He then answers via the terminal keyboard.

Printed reports can serve as a

basic for discussion with his counselor, or for further review with his parents.

## CAI System Will Be Tested in Schools

By a CW Staff Writer

WELLESLEY HILLS, Mass. — The first field tests of Honeywell's computer-assisted instruction (CAI) system will begin this year in two Louisiana schools.

The adjacent school districts of Bossier Parish and Caddo Parish in north Louisiana will employ a newly installed Honeywell 2200 computer system for the CAI field tests. The computer was installed with a federal grant at the Supplementary Education Center of the Bossier Parish School Board.

The center is supported by Bossier, Caddo, and 10 other

school districts in northwest Louisiana, and currently is used for a variety of student and administrative data processing.

The CAI system utilizes Visual Information Projection (VIP) devices and specialized computer peripheral processors.

One goal of the field tests will be to determine if teachers with no previous programming experience can conveniently use Honeywell's Author Language, a simplified programming language based on Honeywell's CAI application package.

Author Language permits a teacher to prepare and display

educational material — such as questions, instructions, and reading matter — on the VIP screen. The student uses a keyboard attached to the VIP terminal to respond to this material. The teacher's keyboard will help to determine what benefits students derive from the use of on-line teaching terminals. Two groups of high school students with similar academic skills will be compared: one group using the CAI system and one will not. The achievements of the two groups will be compared as one criteria of the effectiveness of the CAI system.

## H-200, 1410, 1401's FOR SALE

IPS has several IBM and Honeywell systems for sale and delivery in the near future. An H-200 BK system with 3 20KC tapes is available now. IBM 1410's include an 80K with 2302 disc and 7330's, a 40K with 10 729's, and a 40K with 1402, 1403, and 9 7330's. Among the 1401's (all with 1402, 1403) are BK and 4K card systems, a 12K tape system, a 16K tape/disk system, and a 4K with 2 1311's. A 1440 BK 2-1311 and a 1440 16K 3-1311 system are also available. For prices, delivery, and details, please call or write.

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# Micro Programmed Technique Is Basis for Computer

SANTA ANA, Calif. — A digital computer based on micro-programmed techniques is now available.

The Micro 800 is designed for direct integration into control and processing system applications such as data communications, data acquisition, automatic testing, and numerical control.

The Micro 800 offers a 1.1-microsecond basic cycle time with 220 nanosecond micro-command execution time; microprogramming (firmware); basic building-block design of core memory, read-only store, control, processor, and input output modules.

Core memory is expandable from zero to 32,768 bytes (8,9

or 10 bits) in 4096-byte increments to meet the requirements for any application. Read-only store is expandable from 256 to 1024 words in modules of 256 words, and file registers are a set of 16 general-purpose 8-bit registers.

Mechanical and electrical construction reduces system costs by providing standard modules for system options such as direct memory address, memory protect, power fail detect/restart, and external interrupts.

The Micro 800 is programmable at the micro-level for maximum benefit of the machine's full capacity and speed, and to minimize interface hardware.

It may also be programmed with standard instruction set to provide macro-level software solutions.

Additionally, the Micro 800 may be programmed by creating problem-oriented macro-instructions and I/O facilities which supplement a "standard" in-

struction set to give optimum I/O bus, and higher input/output rates up to 100,000 bytes at 700,000 bytes per second.

A read-only memory, memory control unit, auxiliary arithmetic unit, input/output processor, and a peripheral crossbar can also be added.

The basic module is 10% in. by 17% in. by 24 in., which includes the control processor, room for up to 8K words of memory, power supply, and several I/O controllers. A modularized system with room for over 10 peripheral controllers can be contained in five rack-mounted modules with a total panel height of only 5 1/2 inches.

Delivery is said to be less than 30 days.

Micro Systems, Inc., 644 Young St., Santa Ana, Calif. 92705.

### Control Processor

A modular computer system which starts with a basic 4K, 16-bit word length, 900-nanosecond cycle time, a control processor, and an ASR 33 Teletype has been announced.

The keyboard terminal is designed for situations in which the exchange of additional information is desired, and features a standard keyboard arrangement for entering the message information, plus "field keys" which light up in sequence to tell the operator what to do next.

This feature makes the unit virtually self-training, the company said.

The keyboard terminal holds the message in memory so that changes or corrections can be made prior to transmission without re-entering the entire transaction. A combination of the printer and keyboard in the unit provides instant printed copy of each transaction.

In addition to the normal reservation format, 62 spaces can be used for additional information, such as extra, which are spelled out rather than coded.

The keyboard terminal supplements the stylus-operated message composer and printer function of the terminal currently in use, giving Teletex subscribers a choice of three different terminal units.

Teletex, 6 Kingsbridge Rd., Fairfield, N.J.

load, program flags, high-drive I/O bus, and higher input/output rates up to 100,000 bytes at 700,000 bytes per second.

A read-only memory, memory control unit, auxiliary arithmetic unit, input/output processor, and a peripheral crossbar can also be added.

The basic module is 10% in. by 17% in. by 24 in., which includes the control processor, room for up to 8K words of memory, power supply, and several I/O controllers. A modularized system with room for over 10 peripheral controllers can be contained in five rack-mounted modules with a total panel height of only 5 1/2 inches.

Delivery is said to be less than 30 days.

Tempo Computers, Inc., 340 W. Collins Ave., Orange, Calif. 92667.

### Keyboard Terminals

A keyboard terminal that combines code and memory in one structure is being offered to Teletex subscribers.

The keyboard is designed for situations in which the exchange of additional information is desired, and features a standard keyboard arrangement for entering the message information, plus "field keys" which light up in sequence to tell the operator what to do next.

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Teletex, 6 Kingsbridge Rd., Fairfield, N.J.

### Dual Memory Calculator

A desk-top 10-key electronic calculator with two memory banks uses the standard 10-key keyboard of the Business 162, and an operator can perform a number of operations automatically. These include decimal alignment, rounding off, accumulation of products and quotients, square root and squaring, raising to a power, and automatic constants in all operations.

The machine will also strike a credit balance.

In the event an operator for-

### New Products

gets, the two memories in the Business 162 remain even though power is shut off. Either mem-

flow, pressure, strain, chemical processes, and displacement dynamics, and in laboratory and process control.

It features the ability to handle mixed signals from high-level sources together with outputs from low-level sources.

The recorder can be operated in any of these three modes: *Multipoint*, for sampling from 8 to 2 channels at rates of 2 seconds per sample, up to 10 samples per second; *Intensified*, by which channels of higher dynamic content may be sampled with greater frequency than others; *Continuous*, in which every channel can be recorded continuously at frequencies as high as 5 Hz full-scale, or higher at reduced amplitudes.

A single pen driven by a high-torque servomotor controlled galvanometer touches the memory chart each time a data channel is sampled.

A solid-state multiplexing system allows 8-channel operation through one amplifier, or inputs can be derived through external amplifiers.

The system is available in both benchtop, portable or rack-mounting versions, and is priced about \$2500.

Bruh Instruments, 37th and Perkins, Cleveland, Ohio 44114.

### CORE MEMORY SYSTEM

A compact core memory system that the firm says costs as little as five cents per bit has a 4096-word memory available with 8, 12, and 16 bits per word, and measures 2 3/4 in. by 5 in. by 9 in.

The system, called the ICM 160, is field-expandable to other word and bit sizes on a modular basis.

Fully cycled time is 1.6 microseconds with access time of 550 nanoseconds.

The ICM-160, which is the first of a new line, features low power consumption and high reliability in addition to small physical size, the company said. It is designed for medical, scientific, petrochemical, steel and power process control systems, computer peripherals and data rate buffering, as well as for use as a mainframe memory in general-purpose and special systems.

Components and core stock of the memory are packaged on removable printed circuit cards for ease of maintenance. The system uses a four-wire coincidence circuit to sense the core, and the core is self-contained, including an address register, internal timing and control, sense amplifiers, and integrated circuit X-Y selection switches.

All logic, addressing, decoding, control and timing functions are integrated into a single, high-gated circuit which is said to provide a high calculated mean time between failures of 40,000 cycles.

The memory is both electrically and mechanically compatible with other Honeywell Micro-Pac systems, and can be operated from common system power supplies.

Honeywell Computer Control Div., Old Connecticut Pkwy., Framingham, Mass. 01701.



or 10 bits) in 4096-byte increments to meet the requirements for any application. Read-only store is expandable from 256 to 1024 words in modules of 256 words, and file registers are a set of 16 general-purpose 8-bit registers.

Mechanical and electrical construction reduces system costs by providing standard modules for system options such as direct memory address, memory protect, power fail detect/restart, and external interrupts.

The Micro 800 is programmable at the micro-level for maximum benefit of the machine's full capacity and speed, and to minimize interface hardware.

It may also be programmed with standard instruction set to provide macro-level software solutions.

Additionally, the Micro 800 may be programmed by creating problem-oriented macro-instructions and I/O facilities which supplement a "standard" in-

instruction set to give optimum I/O bus, and higher input/output rates up to 100,000 bytes at 700,000 bytes per second.

A read-only memory, memory control unit, auxiliary arithmetic unit, input/output processor, and a peripheral crossbar can also be added.

The basic module is 10% in. by 17% in. by 24 in., which includes the control processor, room for up to 8K words of memory, power supply, and several I/O controllers. A modularized system with room for over 10 peripheral controllers can be contained in five rack-mounted modules with a total panel height of only 5 1/2 inches.

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# Wirecutters, Acid Used on Computer

By Peter L. Briggs

BOSTON — The central computer at Boston University's Educational Center was destroyed by vandals either late Saturday night or early Sunday morning, April 29 or 30 according to John E. Alman, director of the facility.

The damage was discovered by an operator arriving about 10:00 a.m. Sunday. Alman and IBM were called.

The operator discovered that the outside doors of the building had been forced, and the inside cage-type door had been cut through. The vandals ignored the records stored nearby, however, and concentrated on the internal portions of the IBM 360/40.

They used wire cutters to cut the connecting wires within the CP, effectively destroying the machine's usefulness, Alman said. To make absolutely certain, he continued, they then cut lines in the printer circuit, eliminating any possibility of immediate repair. The acid seriously damaged most of those areas not reached

by the wire cutters, he said.

At the time *Computerworld* spoke with Alman, IBM was trying to estimate the extent of the damages, but no figures were available. IBM was unable at press time to provide any estimate as to the extent of damages or the time needed for replacement or repairs.

The computer was used as the central computer for educational use. Backup arrangements for use have been made with IBM.

Mysterious phone calls received at the occupied administrative facility throughout Saturday night indicated the vandals might have been after the 360/30 located there.



**NEW AND THE OLD:** The new computer-based filing system at St. Francis Hospital, Wichita, Kan., is in sharp contrast to the old, manual system, shown in the background. The system uses an IBM 360/40 and 2280 terminals.

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**Editorials****Welcome to a New Peripheral**

Generally computer peripherals are not thought to include memories, but the logic of this distinction is based on the fact that memory is tied into the central processor. Extended core memories are not tied into specific processors and now, it appears, they do not even need to be tied into a specific type of processor! Now the same memory can be used for different systems manufactured by different companies. Now they appear to be bona fide peripherals.

From the user's point of view, every relaxation of restrictions, every piece of increased flexibility in the hardware, indeed every added facility, is welcome. And so we welcome the new Lockheed memories. They can do nothing but improve the user's range of choices.

And we also welcome the appearance of Lockheed, with its well-known name and fine reputation, into the ranks of hardware manufacturers. We are sure that this is not the last product for commercial computer users that we will be seeing from them.

**Plug-Compatibles  
& Computer Contracts**

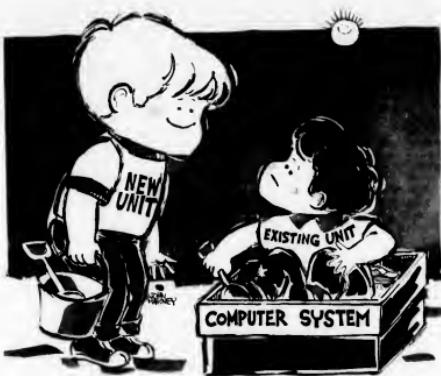
In a recent article, Francis G. Awalt, Jr., of IBM's Advanced Development Division counseled attorneys on the problems involved with contracts for computers. There are a number of interesting points in his article including one pointing out that the user is primarily responsible for providing programs and another that clients should be made to realize that manufacturers may not continue to provide programming maintenance for machines if they decide to purchase rather than rent systems.

However, a more surprising point came when he was discussing the problems of systems where the products of two manufacturers are interconnected. He said that suppliers have little real knowledge of the effect of one piece of equipment upon another, even though they are "plug compatible." And, he says, that therefore each supplier in a data processing system must disclaim responsibility for the failure of performance of such a system.

If this is true, then it is very serious. In another editorial we are commenting, for instance, on the introduction of the Lockheed plug-compatible memories. If Lockheed "has little real knowledge" of the effect of this equipment on System 360, then its action in offering it raises serious questions involving Lockheed's morality.

If, on the other hand, these effects are known, then the suggestion by Awalt that they are not would appear to be a scare tactic which the industry could do without.

In either case it is clear that more information should be available both to lawyers advising their clients and to the industry at large. This is something which Awalt might urge the manufacturers to work actively together to change, rather than urging attorneys to base their advice on the effect of missing data.

**Some Adjustments Needed****Letters to the Editor****What If the ACM's Membership Had Grown As It Should Have?**

Following Miss Sammons' article in the Jan. 22 issue, I had a nagging feeling in the back of my mind that the ACM's 25,000 membership of ACM and its somewhat antiquated organization based upon a smaller society. What bugged me was "What if ACM had grown as it should have?"

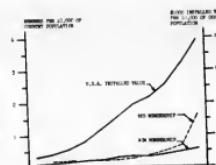
In case anyone thinks it has, here is a small graph that tells the story. The disparity in slope does not appear as bad as it really is, for the computational power per dollar has increased greatly in this 10-year period.

The British Computing Society's figures are shown for reference. The BSC seems to have done something about it. Membership at the end of 1968 was 18,000 in a country of 55.8 million people. At the same time, the ACM membership was 22,800 in a country of 198.8 million which was more installation value per capita than any other country in the world.

Would chartists extrapolate to the conclusion that ACM is a dying society, or at least one whose real influence will disappear?

R.W. Bemer

General Electric  
Phoenix



Computerworld welcomes comments from its readers. Preference will be given to letters of 150 words or less. Computerworld reserves the right to edit letters for purposes of clarity and brevity. Letters should be addressed to: Editor, Computerworld, 60 Austin St., Newton, Mass. 02160.

**Message From a Computer To Computerworld's Computer**

The following letter was received in answer to a letter from CW's managing editor, which began: "Our computer tells me that you have not renewed your subscription . . ."

**DEAR COMPUTER**

I WOULD LIKE TO TAKE THIS OPPORTUNITY TO POINT OUT YOUR ERROR IN TELLING YOUR MANAGING EDITOR THAT ALASKA DEPARTMENT OF LABOR HAS NOT RENEWED ITS SUBSCRIPTION TO COMPUTERWORLD.

PLEASE INSTRUCT YOUR HEARTLESS PROGRAMMER THAT ALL THAT WAS WANTED WAS TO CHANGE THE NAME ON THE SUBSCRIPTION. IF THIS CAUSES THE MATCH CODE NOT TO MATCH THERE IS A BUG IN YOUR PROGRAM WHICH SHOULD BE CORRECTED.

WHILE I AM JUST AN AGING SECOND GENERATION COMPUTER MY MEMORY HAS BEEN UPDATED TO REFLECT A RECENT ORGANIZATION CHANGE BY COMPUTERWORLD. CONGRATULATIONS TO EVELYN COWELL YOUR NEW EDITOR ON SPECIAL SUPPLEMENTS, HENRY FLING SUPERVISOR ART SERVICES, AND KATE RACHSTEIN SUPERVISOR TYPESETTING SERVICES. I SUGGEST YOU OBTAIN THEIR HELP IN GETTING THAT HEARTLESS PROGRAMMER GU TO UPDATE YOUR MEMORY BANKS.

BEING IN AN ISOLATED AREA THE ORGANIZATION LOOKS FORWARD TO EACH NEW ISSUE OF COMPUTERWORLD AND SINCERELY HOPE YOU CAN MAKE THE MATCH CODE MATCH SO WE MAY CONTINUE TO ENJOY YOUR WEEKLY PAPER.

SINCERELY YOURS,  
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## Merchandising Convention Scheduled for April 20-23

ATLANTIC CITY, N.J. — Two sessions at the National Mass Merchandising Convention, to be held here April 20-23, will be devoted to information systems. A discussion by users of EDP as applied to retailing, soft goods, and warehouse inventory management will be held April 21 at 2 p.m. Taking a systems viewpoint, the discussion also will cover future uses of EDP for inventory control.

## IEEE Memory Systems Symposium To Be Held Today in Los Angeles

ENCINO, Calif. — A one-day symposium on "Memory Systems - Past, Present, and Future" will be held in Los Angeles April 9 at the Computer Group, Institute of Electrical and Electronic Engineers.

Planar thin film, semiconductor, core, plated wire, and other memory technologies will

be examined in nine papers presented by experts in the field.

Prior registration is \$4 for IEEE members and \$5 for nonmembers.

Further information may be obtained from Bill Martin, Hughes Aircraft Co., P.O. Box 3310, Bldg. 604/B-115, Fullerton, Calif. 92634.

## sm t w f s calendar sm t w f s

April 8-10, Daytona Beach, Fla. — General Electric 400 Users Association. Contact: Bruce H. Reinhold, Pittsburgh National Bank, Pittsburgh, Pa.

April 20-23, Atlantic City, N.J. — Fourth National Mass Merchandising Convention. Contact: MMRC Headquarters, 570 Seventh Ave., New York 10018.

May 13, Boston, Mass. — "Extensible Languages" symposium by the ACM Special Interest Committee on Programming Languages. Contact: Carl Christensen, Extensible Languages Symposium Chairman, Massachusetts Computer Associates, Inc., Lakeside Office Park, Wakefield, Mass. 01880.

May 16, Utica, N.Y. — Upper New York State Systems Seminar (The Association for Systems Management). Contact: Joseph W. Bernhard, (315) 797-2600.

May 20-22, Houston, Texas — Southwestern VCC. Contact: John E. Sedan, executive vice-president, Society of Reproduction Engineers, Suite 610, 305 Andrews Ave., Fort Lauderdale, Fla. 33301.

May 27, Harrisburg, Pa. — 5th Annual Systems Seminar. Contact: Stan Krosz, 710 Elkwood Drive, New Cumberland, Pa. 17070.

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# Railroad Operations System Ahead of Schedule

By Peter L. Briggs  
CW Staff Writer

**Southern Pacific Railroad** is speeding up its conversion to a new computerized Total Operations Processing System (Tops) on a nationwide basis. The company is well ahead of the expected status, it is operating over half of SP's 4,000-mile track system, and will be completely operational by August according to John Nielsen, supervisor of training for the new system.

The system, a \$22 million in-

vestment on the part of SP, will provide information on location of all cars, goods in transit, and the routing needed to perform the best service in rail shipping.

Communication for the system is provided through the company's nationwide microwave communications network, the world's longest private network of this type.

All data is tied in by wire to 1,800 stations and transmitted to the company's central computers (two IBM 360-65) for processing. The resulting analysis

is projected on a wall-sized display showing the key routing points of the rail network and the interconnection points with Tops networks.

Tops already extends throughout eight states, providing routing improvements for local shipping in areas where the system is completely active, according to company president Benjamin F. Biagini.

"Our objective in developing Tops, is to find new ways to improve service to shippers and the consuming public," he pointed out.

The company intends to implement a total management information system based on the data gathered by the automatic detection devices in the system when railcars pass through. These devices determine what car has passed through that point, and this information should permit the company to improve the precision of its service, as well as the scope.

One major expense in the shipping area is the problem of maintaining inventories of freight cars, Biagini said. This system will enable the company to know what type as well as how many units they have at each



Edward Katon at the San Francisco traffic service bureau retrieves an answer for a customer.

point, allowing them to give a customer an accurate estimate of when they can supply the needed cars.

"Tops will give us, in effect, an overall's eye view of the entire railroad," Biagini declared. "Our people will have better control over the whole, wide range of day-to-day railroad operations."

"All levels of management will get timely information needed to speed up service," he added.

When completed, the system will incorporate some 323 locations for reporting using about

450 devices. Currently some 140 locations are reporting.

"At every level of supervision and every point of action," Biagini declared, "railroad men will have the instant information to help them make meaningful decisions not now possible."

The system is the result of some 100 months of development work and the accumulation of a staff of about 200 specialists from both IBM and SP.

When the end of the year some 2500 people will have received the training program.



Carol Rilovich checks the console of the central IBM 360/65 in San Francisco.

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**Commonwealth Computing Inc.**

Sharon Shores, working at the Warm Springs Yard, Fremont, Calif., reports car information to the central computer.

## NOTICE TO ADVERTISERS

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**1. SJCC Preview Issue — mailed May 7th (one week before the show opens)** 5-6000 issues distributed by Computerworld to show attendees — May 14th

- (a) Issue date is May 14
- (b) Color closing — April 18  
(Space reservations & mechanicals)
- (c) Pub. set closing — April 25  
(Space reservations & copy)
- (d) Black and white closing — April 28  
(Space reservations and mechanicals)

**2. SJCC Show Issue — mailed May 15th** 5-6000 issues distributed by Computerworld to show attendees — May 15th

- (a) Issue date is May 21
- (b) Color closing — April 25th  
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- (c) Pub. set closing — May 2
- (d) Black and white closing — May 5  
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## Bill Would Give 3 U.S. Agencies Right To Bar Certain Banks From DP Field

WASHINGTON, D.C. — The Nixon administration proposed to control the activities of "one-bank holding companies" last week immediately before hearings imminent before a bill introduced by Wright Patman, chairman of the House Banking and Currency Committee.

The administration bill called for the one-bank holding companies to be prohibited from activities included in lists to be written by the Federal Reserve Board, the controller of the currency, and the Federal Deposit Insurance Corp. Currently these holding companies can engage almost any activity because of a loophole in the 1956 Bank Hold-

ing Company Act. As a result of this loophole, the number of one-bank holding companies, which was only 117 last year, has now reached 783. It is believed that they control over 40% of the total banking industry.

The bill, if passed, would allow the administration either to permit or deny entry into the right holding companies into data processing services. Currently, under a ruling issued by the controller of the currency, banks are free to enter into this field. However, this ruling is being challenged by the Association of Data Processing Service Organizations in the courts.

A more stringent control on one-bank holding companies has been suggested by Wright Patman. He is asking Congress to direct these companies to diversify themselves into nonbanking activities within five years. Hearings on this bill are to be held early this month.

The problem of one-bank holding companies has also been approached by Sen. William Proxmire, D-Wis., who has proposed legislation that would freeze the number of such companies until June 30, 1971. The Proxmire bill would also ban these companies to continue any nonbanking activities which they engaged in before the 1971 date.

Adlups has lost two rounds in court in its fight to prevent national banks from offering data processing services. A bank seeking to have the case reviewed by the U.S. Supreme Court.

## Slower, Cheaper Version Of the 1108 Is Introduced

(Continued from Page 1)

microseconds.

Input/output channels come in groups of four, each with a throughput rate of 333,000 words per second, subject to the system limit of 667,000 words per second.

Instruction overlap allows simultaneous access of instruction and data. Double precision and floating point operations are standard, as on the 1108. The 1106 has 128 programmable registers for arithmetic operations, address indexing, and I/O buffer control.

Up to 1600 parallel character lines can be added. Internally Specified Index (ISI), another 1108 feature, is said to allow multi-line, self-controlled transfer without disturbing program sequence. Guard Mode is Univac's term for memory protection. Each program or symbiont is assigned its own Guard Mode limit, with variable-size partitions, Univac said.

The 1106 differs significantly from the 1108 in that true multivariant processing (two or more processors sharing memory) is not available.

All software available for the 1108 can be used on the new

processor, the company said. Operating Systems Exec II and Exec III, and the Exec IV compiler is offered, along with applications packages such as APT III, Pert/Time, Linear Programming, and Univac's Math/Stat subroutines. A Cobol compiler also is available, Univac said.

The 1106 can use Fasstrand II and III drums, the FH-432, FH-880, and FH-1782 fixed-head drums, and other peripherals, including the 9000 series processor, communications terminals, and high-speed printers, the company said.

### Typical System

A typical 1106 with 131K of main memory, four input/output channels, a (full I/O) CRT console, a 1782 drum, three FH-1782 fixed-head drums, 196 megabytes of disk storage, (196 million-character storage), two printers (including one delivering 1600 lines per minute), six Uniservo VHIC tape drives, and eight Control Termination Modules with a control, will rent for \$10,000 per month, Univac said. A similarly equipped 1108 rents for about \$52,000.

Delivery is expected to begin in the first quarter of 1970, Univac said.

## Plug-In Mass Memory Is Designed For Univac 494s, Large IBM 360s

(Continued from Page 1)

retired for large-volume updating operations. Any company

### Conversational Mode Is Added

(Continued from Page 1)

note high-speed printer or a thin

kind of service, after it released,

RJE to process data sets pro-

duced by CRIE. RJE can drive a remote line printer.

CRIE is scheduled for release

during the third quarter of 1970.

The minimum configuration

CRIE unit with MVT includes a 360/50 with 384,000 bytes of core storage. Operation under MFT requires at least a Model 40 with 256,000 bytes.

The unit will be delivered start-

ing in the first quarter of next

year, according to Lockheed,

which has offices at 6201 E. Randolph St. here.

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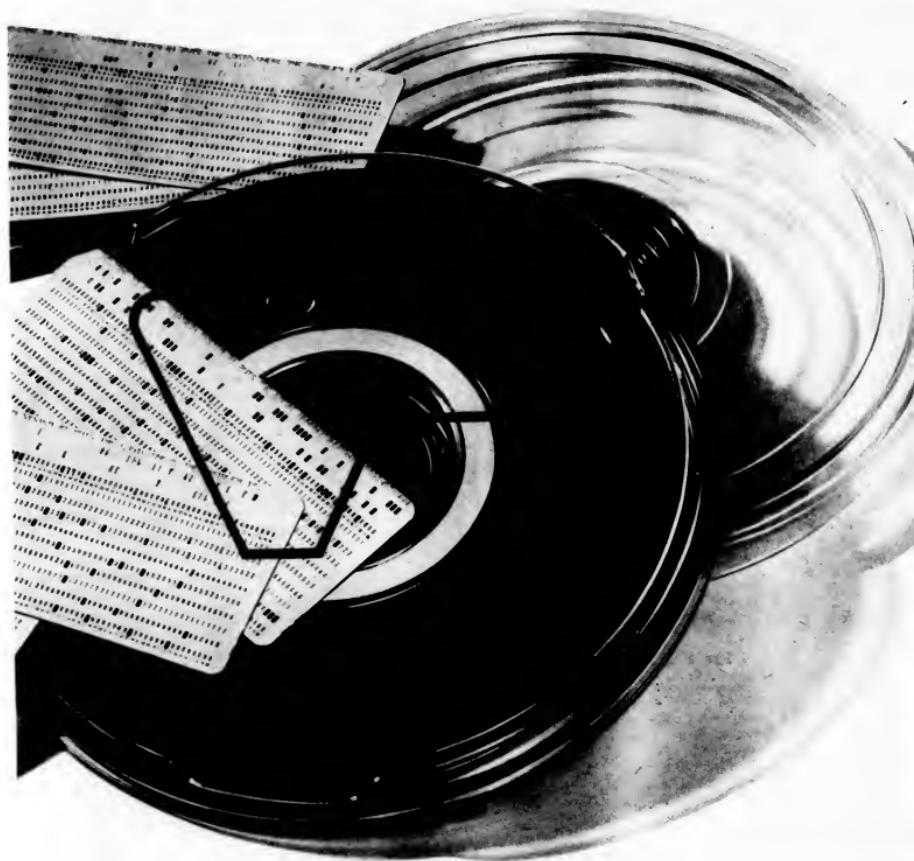
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## DAI Net-1 Provides for More Accurate Analysis

LEXINGTON, Mass. — A new version of the combined Network Analysis (original Net-1) System and the Series Output Processor (SOP), which were originally developed by Los Alamos Scientific Laboratories, has been developed by Design Automation, Inc.

The package, called DAI Net-1, provides correct computations in cases where the original version cannot, the company said. It is supposed to be much less prone to "mysterious" failures, require less computer time, and by better adaptation to the better environment, simplify input requirements, and streamline operating procedures, the company explained.

### Program Description

For use by computer-aided electronic circuit designers and analysts, DAI Net-1 is an efficient, reliable program for nonlinear dc and nonlinear transient analysis with emphasis on better, faster, more accurate results than its predecessor for rapid, trouble-free batch processing, the company said. Electronic circuits containing the following components can be analyzed: resistors, capacitors, inductors, mutual inductances, transistors, diodes, dc sources, signal sources, and devices which can be modeled as combinations of the above, the firm said.

The program includes the Los Alamos improved dc analysis routine using double-precision arithmetic. The DAI version was developed for use in DAI's own computer-aided design consulting activities.

### Graphical/Potter Output

The output processor/potter routines allow all of the following results of the Net-1 transient

analysis to be plotted on the General Dynamics SC-4020 (original Net-1) system and/or printed in compact edited form, using the printer tape node voltages; transistor terminal currents; dc current; inductor currents; signal source voltages; any mathematical function of the voltage or current; and addition, subtraction, multiplication, division, integration, and differentiation with respect to any variable (including time); and functions of such operations. On the plots, all of the preceding terms can be plotted against time or versus each other, DAI said.

The package operates on the IBM 7094, the 360 with 7094 emulators, and the Standard Computer IC6000. A 7090 version is planned for request.

Object tape, with a built-in 120 character header specified by the customer. One year of maintenance, a program test case, a semiconductor library tape, a manual update program, user manual and loader cards are included in the \$230 per price, DAI said.

"We see this system as offering valuable potential for information retrieval in the field of research and development, law chemistry, medicine, finance, and personnel," said William F. Goros, chairman of Data Corp. "In fact, we are already working on significant new areas."

This is how the system works, according to Data Corp.:

Every word entered in the data base becomes a "handle" for

## 'Gedan' Provides On-Line Personnel Information

NEW YORK — At a recent demonstration, before a group of American Management Association members, General Electric introduced its new personnel analysis system, known as Gedan (GE data analysis), for use with the time-sharing system.

"The new program uses the GE time-share system to keep up to date with personnel analysis and retrieval tasks never before possible in so short a

time," said Glenn Bennett, a GE consultant on personnel practices and systems.

Originally developed for batch-processing work in the company's personnel sections, the program has been adapted to time-sharing to facilitate free use of the approach to the streamlining of personnel functions, Bennett said.

To demonstrate the package, Bassett had attendees fill out questionnaires as they entered the meeting. During the presentation, Bassett and his aides fed questions into the system, which was running on a GE 360 mainframe with DOS, or OS on the model and one Honeywell 200 and 2200 machines, he said. The other versions currently being prepared will operate on Univac, GE, RCA, and CDC equipment, he said.

The package is available under a three-year lease for \$4800 per year and, after the three-year period, for \$900 per year for one language, or for each year thereafter. The charge is \$1100 per year for the first three years and \$350 per year thereafter.

Computer Time-Sharing Corp. is at 1018 Palo Alto Office Center, here.

In explaining the purposes of such a system, H.Y. Weatherbee, manager of employee relations, and practices for the company, said that for personnel people, important performance "needs" are finding new relationships which enable us to better predict employee behavior. If turnover is high in your operation, can you produce hard data which points to the causes of that turnover? Using the time-shared services, you can "create any special group of records, thereby isolating them for analysis or review."

DAYTON, Ohio — A new information storage and retrieval system, which the developer says is the most sophisticated, reliable, and practical system yet devised, has been introduced by Data Corp., a subsidiary of the Mead Corp.

The system stores and retrieves plain English commands answered in seconds, builds its own keyword dictionary, and permits direct access to the complete data base or any part of it, a company spokesman said. It can be used with any 64K or larger IBM 360 system or can be adapted to other similar size equipment, he said.

Data Central, as the new system is called, is now operational and has been selected by the National Bureau of Standards to handle its computer and Technical Information as best suited among 30 other candidates for U.S. government use.

"We see this system as offering valuable potential for information retrieval in the field of research and development, law chemistry, medicine, finance, and personnel," said William F. Goros, chairman of Data Corp. "In fact, we are already working on significant new areas."

This is how the system works, according to Data Corp. Every word entered in the data base becomes a "handle" for

extracting information, with the "dictionary" growing with every input to the system. This permits the user to obtain free-text basis, searching every word in the data base and quickly producing the requested information.

Mead Data Control does not require use of special codes or abstract codes based mainly on headings. Information required may be modified or narrowed depending on the user's requirements. Once the MDC computer has been informed which and how much information is wanted, the data is sorted on a CRT, high-speed printer, or remote typewriter console, or recorded on magnetic tape.

The company is currently involved in a joint project with the Ohio Bell Telephone Co. to file Ohio case law, representing some 95 million words since 1910. When completed later this year, Ohio Bell will be able to furnish out-of-court precedents. Under a government contract

and technical direction of the IST (Information Science and Technology) Panel of Costal, a Mead Corp. is currently loading five informative files in a data base which includes:

1. A compilation of summary data concerning current U.S. government-sponsored IST research and development.
2. Bibliographic references to the Information Research Center publications of the Battelle Memorial Institute.
3. Bibliographic references to the Technical Information Exchange records concerning computer sciences of the National Bureau of Standards.
4. Bibliographic references and abstracts from Volumes I, II, and III of the Annual Review of Information Science and Technology (IST) published by the American Society for Information Science.
5. A file containing a 3000-word glossary of IST terms such as byte, binary, time-shared, etc.

## A New Mapping System Plots Maps Automatically

SACRAMENTO, Calif. — A computer program for automatically plotting subdivisions and similar surveying projects has been designed by PMT Associates.

Designated Samps (Subdivision and mapping system), the program plots a subdivision map complete with bearings, distances, and all other information needed to describe a final map, the firm said.

Originally developed to help the engineer to plot work sheets used in subdivision computations, the program can also be

used for plotting control networks for surveying jobs and for primary control of aerial photographic PMT said. No manual intervention is needed for preparation of an intermediate map, and conflicts arising from common courses of adjacent lots are automatically resolved, the company said.

The program is designed for use on an IBM 1130 with 8K, disk storage, and a CalComp plotter.

PMT has its offices at 3260 "J" St. here.

## IBM Is Designing an Order Entry System for Apparel Companies

WHITE PLAINS, N.Y. — A computer program to help apparel and footwear manufacturers get the right merchandise to their retail customers before it goes out of style is being designed by IBM.

The program, called the IBM Order Allocation System, is designed to let customers orders based on priorities established by the user. The priorities can take into account such factors as the size and type of order, the

retailer's requirements and ordering patterns, and the desired balance between inventory and open-order backlog, Bassett said. Detailed "picking slips," listing all items to be shipped, are printed by the computer, he said.

The order allocation system may be used on IBM 360/370 and larger 360s that have disk storage and a minimum capacity of 24,576 bytes, he said. It is scheduled to be available in the first quarter of 1970, he added.

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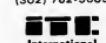
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April 9, 1969

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**CCS Drops Its Ban on Deposits**

**NEW YORK** — Central Certificate Service (CCS), the New York Stock Exchange's answer to automatic name transfers, resumed taking deposits again last week, after a couple of weeks' inability to handle the additional input volume.

But their problem doesn't appear to be over. The March 31 *Wall Street Journal* reported that the chief of the exchange's computer system, Robert B. Grant, had resigned and had held the post for seven months. Grant was said to have cited policy differences with exchange leaders in the area of CCS development.

These leaders are the same people as those who, collectively as Exchange governors, and individually as members of their firms, have funded in-depth studies of the automation of back-office operations.

CCS doesn't handle securities registered in individual or institutional owners' names. As far as the transfer of institutionally-owned securities, *Computerworld* has previously reported substantial progress, including two private efforts, and one by the Exchange (*CW*, April 2).

**Burroughs 2-for-1 Split Is Approved**

**BURGHOVS** Corp. directors have approved a two-for-one stock split and an increase to 30 million shares from the 12 million of common previously authorized.

Ray W. Macdonald, president, before the meeting indicated that the company may enter the time-sharing market.

Burroughs, according to Macdonald, has experimented with the concept of time-sharing with the establishment of several data centers in order to "obtain experience" in the data centers. "We will be able to make further announcements in connection with our program to establish time-sharing and data processing centers in a number of locations in the United States and abroad," he added.

Macdonald added optimism in that first quarter and full-year results will exceed 1968's, but also mentioned that the company may have to borrow to finance slated sales of \$200 million in 1969.

Burroughs' planning outlays of \$100 million for new plant, tools, equipment, and modernization, and \$150 million for equipment leasing.

Macdonald added that incom-

ing orders for commercial equipment of all types will be equal to "something above last year's" level, but government contracts will probably be below last year's level."

"Confidence" for all of 1969 was stressed by Macdonald as he concluded that Burroughs would "show strong growth in revenue and profit."

**Xerox Split Record Date Is Changed**

**ROCHESTER, N.Y.** — The record date for a proposed two-for-one stock split was changed to May 16, 1969, by the directors of Xerox Corp. at their meeting on March 24.

Shareholders of record as of 3 p.m. EDT on that date would receive one additional share for each share of Xerox common stock held. The distribution is contingent on shareholder approval of an increase in authorized common stock.

The new record date coincides with the proposed merger date of SDS into Xerox.

If approved, delivery of the

**Electronic Data Systems Plans Tender Offer for Collins Radio**

**DALLAS** — Electronic Data Systems, with 1968 sales of \$7.7 million, is presently planning to make a tender offer to buy the stockholders of Collins Radio Co.

Collins had sales of \$447 million in 1968, or about 55 times greater.

Collins quickly indicated, "Based upon an initial evaluation of the financial sales and earnings of the companies and their relative growth potential, the offer didn't appear to be advantageous and wouldn't be supported by management."

The offer to the Collins stockholders will be made by Electronic Data Systems, with a market value of \$65 at the time the exchange offer commences, for each share of Collins common tendered, but with a maximum of one and a half Electronic Data shares for each Collins share.

Electronic Data didn't indicate the percentage of shares it is seeking through the offer; however, the value of 50% of Collins, or on 1,483,713 of the shares outstanding, would be \$96.4 million.

Rose Perot, president of Electronic Data, said that his com-

pany will file a registration statement with the SEC, and that Electronic Data expects to make the tender offer within 30 days.

"Working together, Electronic Data and Collins," said Perot, "would be able to substantially accelerate the intelligent use of and availability of operational business information systems."

"As a team, EDS and Collins would be able to develop com-

puter hardware and communications systems with the latest technology, and creativity."

Collins reported net income of \$13 million on sales of \$447 million in the fiscal year ended July 31, 1968.

Net income of Electronic Data was \$1.6 million on sales of \$7.7 million in the fiscal year ended June 30.

**New Management Drafts Expansion for Realtime**

**NEW YORK** — Increased capacity, improved expansion, and the creation of specialized industry programs are the new plans outlined for Realtime Systems, recently purchased by Chemical New York Corp., the parent holding company of Chemical Bank.

Arthur P. Ringler, newly elected president of Realtime and an executive vice-president of the holding company and bank, has revealed plans "to double the capacity of Realtime with the addition of another Burroughs 5500 series computer."

"The resulting dual system should give our users faster service as well as access to a backup system in case of downtime," he said.

Ringler voiced the intention to market Realtime services on a nationwide basis, and "offer our present users an opportunity for closer coordination with subsidiary units operating in other parts of the country."

The new president acknowledged that Realtime is "presently working in several industries on special programs that will solve unique industry problems via computer programming, and our plan is to develop these specialized industry programs in technical, financial, and commercial areas."

Ringler said that Realtime Systems, Inc. will operate as a subsidiary of Chemical New York Corp. No purchase terms were announced.

**Two French Banks Will Help Start Diebold Subsidiary Firm in France**

**PARIS** — Two French banks, Societe Generale and Banque Rothschild, have signed an agreement with Diebold Computer Leasing, Inc., to establish a subsidiary of Diebold in France. The new company will acquire and lease computers and related equipment in France.

Diebold will own 80% of the new company, and the two French banks will own 20%.

The French company is prepared to acquire leases valued in excess of \$20 million and will begin operations immediately.

The Societe Generale is one of France's largest and best known banks with extensive interna-

tional operations, according to Diebold. The Banque Rothschild is one of the most important financial institutions in France and through its holding company, Compagnie du Nord, has important interests in steel, iron, transportation, oil, and aluminum.

The French affiliate will receive substantial administrative and consulting support from Diebold France S.A., an affiliated company of The Diebold Corp. In fact, the international management consulting firm specializing in business applications of computer and other advanced technologies.

new certificates will be made in mid-June. Previously the directors had set June 3 as the record date for the distribution.

Consideration of a 15 cent

quarterly dividend on the increased number of shares has been moved up from May 15 to the director's meeting of April 28.

**ECPI Seeks to Gain Computer Companies**

**NEW YORK** — Plans to form a general holding company, which would seek acquisitions of computer-oriented companies, and a name change have been announced by the Electronic Computer Programming Institute, Inc.

The company now operates schools for training data processing personnel.

The plan includes an agreement to merge the company and a privately owned concern, Computer General Corp., into a holding company that would be named Computer General Corp., according to the institute. Shirley Davis, the present president of Computer General has no operating assets.

Computer General is comprised of some capable people who will be available for acquisition, said Davis. Although no specific acquisitions are under consideration now, he expects something soon.

Melvin E. Salverson, president of Computer General, was a board vice-president of Control Data Corp., subsidiary, C-E-I-R. Chairman of Computer General is Francis H. Hoge, Jr., vice-

chairman of D.H. Blair Securities Corp.

The stockholders of both companies must approve the merger and the arrangement of accept-

**Datab Merger Accord Involves Stock Worth About \$7.9 Million**

**NEW YORK** — Datab, Inc. and Tabulating and Data Processing Corp., both publicly owned, New York City-based computer service companies, have announced that they have agreed in principle to merge.

The proposed merger agreement is subject to approval by stockholders of both companies and to favorable tax rulings.

Merger terms call for Datab shareholders to receive two shares of stock of the new merged company for each Datab share presently held.

Tabulating and Data Processing stockholders, it was announced,

will receive one merged entity for every TDP share presently held.

Datab, founded in 1960, specializes in the marketing, sale of statistical, optical scanning, and computer-letter fields. Datab reported net earnings of \$186,366, equal to 67 cents per share, on sales of \$2,005,362 in calendar 1968.

Tabulating and Data Processing Corp. specializes in accounts receivable and law office analysis services. TDP, which was founded in 1959, is expected to report sales of approximately \$900,000 in the fiscal year ending March 31, 1969, up from \$555,566 in net income of \$18,656, or 7 cents per share reported at fiscal 1968 year-end.



# New Service Bureau Plans 6 Centers, 21 Franchises

**NEW YORK** - Data Power, Inc., a company incorporated in New York, will provide packaged computer services from locally managed franchise centers.

Arthur L. Leff, president, has experience in establishing computer service bureaus with Western Union and General Telephone Electronics, and has been a practicing attorney.

Data Power, Inc., at 711 Third Ave., initially plans to establish six information processing centers which will connect to a centrally located IBM 360/40 computer. The first center will open in Manhattan in mid-April, then five more will be located in Philadelphia, Hartford, Conn., Fairlawn, N.J., and Rochester, N.Y.

From these company-owned centers, Data Power's district managers will place 21 additional franchise centers. Each will be equipped with NCR key-tape tape/programmers, systems and printers, and will provide localized payroll processing, accounts receivable, inventory control, and other services to small- and medium-size businesses.

## Programming for Banks Object of Software Firm

**CHERRY HILL, N.J.** - Computer Dynamics Corp., a new software consulting firm, has been formed to specialize in computer programming systems for banks, insurance companies, brokerage houses, and other financial institutions.

President of Computer Dynamics is Saul Hanges, a former programming manager for RCA.

The company recently established a New York office at 501 Fifth Ave.

## Multi-Language Flow- Charts for Dallas

**DALLAS** - A new computer software company, Systems, Software, Services, Inc., will concentrate initially on providing a versatile and comprehensive software flowchart package, utilizing a number of different computer languages, to business and industrial data processing departments.

The new company will be temporarily located at 713 Stemmons Tower West until the completion of their new building on Stemmons Expressway near Oak Lawn in about four months.

President of SSS is Robert B. Branch, former director of data processing at Lee Optical.

## Company Will Develop Time-Sharing Applications

**NEW YORK** - Time Sharing Sciences Inc., an independent consulting firm, is being formed to specialize in developing time-sharing applications software, and will act as an interface between the time-sharing vendor and the user.

The applications developed are for use nonprogramming personnel in solving specific problems.

The company, with its offices at 1180 Avenue of the Americas, is engaged in the development of

both proprietary and contractual software.

## Data Processing Services Offered for Roofing

**ROCHESTER, N.Y.** - United Computer Corp. has been formed to offer data processing

## New Companies

services to medical, educational, and business groups.

Services offered include systems analysis, design and implementation, surveys and feasibility studies, systems audits, review and development of documentation standards, programming, information services, and seminars. Dr. Jerome Glazer has been named President of the new facility.

## Company to Specialize In On-Line Data Systems

**DALLAS** - A privately held corporation, Computer Information Management Co., has been formed to provide on-line information systems technical assistance, data processing education, and computer systems design and programming.

David S. Willis, president, previously was with IBM.

## Long Island to Be Covered

**DEER PARK, N.Y.** - CompuType, Inc., a new company, will software development, service center, and time-sharing services on Long Island.

The formation of the company was announced by Donald E. Lees, president, who indicated that CompuType, Inc. was developing specialized software packages, to be used by the medical profession, government, and general industry. The company plans to have its first computer in March, 1969, for the service center. In the third quarter of this year, the company plans to install the time-sharing hardware.

## Personnel Is Main Item

**PINEHURST, Mass.** - DeBar Corp., a newly-formed company, offers technical personnel services and subcontracting to the computer industry.

Richard C. Barbieri, president, said that the company will bring a new concept to this area; that is, high quality personnel services and production at low cost. Negotiations are now under way for office and engineering space.

## DOS Multiprogramming Services Available in NYC

**NEW YORK** - EPG Computer Services, Inc., has organized a wholly-owned subsidiary, EPG Center Corp., Corp.

The new subsidiary is now processing application programs for current clients and is selling time on its IBM 360/50, which is located at 6 E. 39th St.

The Center offers clients a DOS multiprogramming system with three partitions utilizing Power, OS with MFT-2.

## Earnings Report

### DATRONIC RENTAL CORP. 6 Months Ended Dec. 31

1968 1967  
Revenue \$11,020,239 \$4,721,067  
Earnings 113,887 64,357  
Shr Ernd .21 .13

### DATA PACKAGING CORP. Year Ended Nov. 30

1968 1967  
Revenue \$11,227,000 \$4,630,828  
Earnings 93,000 260,348  
Shr Ernd .27 .09

### COMPUTER INDUSTRIES, INC. Year Ended Dec. 31

1968 1967  
Revenue \$11,227,000 \$4,630,828  
Earnings 93,000 260,348  
Shr Ernd .27 .09

### CODEX CORP. 6 Months Ended Dec. 31

1968 1967  
Revenue \$443,539 \$200,784  
Earnings 18,771 (51,461)  
Shr Ernd .02 -.02  
a-Provision has been made for federal income tax due to b-based carry-forward of prior years' losses.

### SCIENCES, INC. 6 Months Ended Jan. 31

1968 1967  
Revenue \$1,004,990 \$804,455  
Earnings 126,000 97,500  
Shr Ernd .13 .10  
a-These figures are unaudited and subject to audit by independent auditors.

### CYBER-TRONICS, INC. 9 Months Ended Dec. 31

1968 1967  
Revenue \$5,148,180 \$4,511,454  
Earnings 21,705 .13  
Shr Ernd — .02  
a-Net income from operations.

### PROGRAMMING METHODS, INC. Year Ended Dec. 31

1968 1967  
Revenue \$2,305,031 \$1,36,028  
Earnings 248,000 117,474  
Shr Ernd .36 .17

### MODERN DATA TECHNIQUES 6 Months Ended Jan. 31

1968 1967  
Revenue \$247,492 \$81,444  
Earnings 44,280 4,570  
Shr Ernd .18 .03

### TECHNITROL, INC. Year Ended Dec. 31

1968 1967  
Revenue \$8,931,356 \$11,416,007  
Earnings (135,960) 467,217  
Shr Ernd — .49  
a-Net income from operations.

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 able.  
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UCC Applies for Listing  
On New York Exchange

DALLAS — University Computing Co.'s board of directors has approved a plan to apply for listing on the New York Stock Exchange. UCC, founded in mid-1963,

has been publicly owned since late 1965.

The company, which expects 1,000 revenue will be about \$100 million from its computing services businesses and its computer equipment manufacturing and leasing subsidiary.

The UCC plan also approved in its board meeting the plan announced earlier to establish public ownership of the company's education affiliate, The Academy of Computer Technology, by distributing a dividend to UCC shareholders in the form of Academy stock.

The plan is subject to further refinement, but it is expected that preparation of a prospectus and satisfaction of legal and regulatory requirements would permit a dividend distribution to be made in June or July.

Mohawk Data and ICL Agree To Patent Cross-License

**N**Ew YORK — Richard P. Rifenburgh, executive vice-president of Mohawk Data Sciences Corp., has announced that MDS has entered into a patent cross-license agreement with International Computers Limited of London, England.

Under the terms of the agreement, each party has a worldwide license under substantially all patents and patent applications owned or controlled by the other.

Computer Counseling Plans To Split Stock 2-for-1

**B**ALTIMORE, Md. — Stockholders of Computer Counseling, Inc. have voted approval of a management-sponsored proposal to split the company's stock two-for-one.

Certificates representing the additional shares will be mailed to holders of record March 14. The approval of Computer Counseling's two-fold stock split has the effect of increasing the company's outstanding stock to about 500,000 shares from 250,000 common shares previously outstanding.

The number of authorized shares was also increased to 4,000,000 from the previous 2,000,000 share authorization.

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## New Registrations

DIRECTED RESEARCH, INC., 22 34th St., New York 10001, a company which is engaged in, and involved in, the development of various, listed to register 150,000 shares of common stock. Proceeds, at \$10 per share, will be used for the development of the company's professional and proprietary computer programs, conversion of existing software computer systems, acquisition of computer systems, promotion, and advertising purposes. The underwriter involved is Salomon Brothers, Inc.

K E Y P U N C H C O M P U T E R T E M P O R A R Y S, INC., 9 W. 61st St., New York 10023, a company which applies keypunching, keypunching verification, franchising and management peripheral services, listed to register 100,000 shares of common stock. Proceeds, at \$10 per share maximum, intended for the development of additional keypunching and verifier machines, working capital and general corporate purposes. The underwriter is Barclay Securities, Inc., 80 Broad St., New York 10004.

I N F O R M A T I O N S Y S T E M S C O R P., 1700 K St., N.W., Washington, D.C. 20006, a company which designs, manufactures, distributes, and provides information systems design and analysis, development of proprietary software or the analysis and programming necessary to support the needs of business, and provides time-sharing, data processing, and communications services. Listed to register 235,000 shares of common stock. Proceeds, at \$10 per share, will be used for the development of an educational and commercial proprietary applications programs, salaries, expenses, equipment, research, and additional time-sharing offices, to develop commercial proprietary software, and for the development of time analysis and programming staff, working capital, and general corporate purposes. The underwriter is Klinger & Mann, 20 Wall St., New York 10005.

S T R A T O G R A P H I C S I N C., 604 Madison Ave., New York 10022, a company which is engaged in the operation of data processing service centers, and the manufacture and distribution of environmentally-controlled workstations. Listed to register 155,000 shares of common stock. Proceeds, at \$10 per share, will be used for the repayment of a bank loan, expansion of the 551 square foot facility, and the purchase of various equipment, working capital, and general corporate purposes. The underwriter is Grinnell & Sons, 40 Wall St., New York, 10005.

A M E R I C A N A U T O M A T I O N T E C H N O L O G Y I N C., 2022 Main St., Kansas City, Mo. 64108, a computer training center and a computer school and which intends to operate a service bureau to utilize the facilities of the computer center. Listed to register 100,000 shares of common stock. Proceeds, at \$10 per share maximum, intended for the purchase of furniture and fixtures, leasehold improvements, development of the network, computer software, and computer capital. The underwriter is Sedditz and Company, Inc., 350 Park Ave., New York 10005.

EOP RESOURCES, INC., One N. Broadway, White Plains, N.Y. 10601, a company which leases computers and computer equipment, and software services, listed to register \$22,500,000 of secured equipment and \$11,000,000 of senior subordinated debentures offered for sale with common stock purchase warrants. Proceeds, at \$10 per share maximum, will be used for working capital, leasehold improvements, and other corporate purposes. The underwriter is Horwitz, Roye, E-Hanover St., New York 10004.

GEOGRAPHIC, 20 Nassau St., Princeton, N.J., a company which applies geographic information systems to advertising, marketing, and marketing research, listed to register 100,000 shares of common stock. Proceeds, at \$10 per share maximum, intended for the development of a system for operation on computers other than Unisys. The underwriter is Bache Hutton, Salomon Brothers, and Salomon Brothers, Inc. The underwriter is J.P. Morgan & Co., 11 Broadway, New York 10004.

D A T A S C I E N C E S C O R P., 150 W. 52nd St., New York 10019, a company which designs, manufactures, and sells data processing equipment, developed and marketed as software, and information systems, listed to register 200,000 shares of common stock. Proceeds, at \$10 per share maximum, intended for overhead, working capital, and general corporate purposes. The underwriter is O'Neill Securities Corp., 23 West St., New York 10006.

S O U R C E D A T A A U T O M A T I O N, INC., 1000 4th Ave., New York 10036, a company which develops equipment and systems using a program record information on cards or tape which are then processed, listed to register 200,000 shares of common stock. Proceeds, at \$10 per share maximum, intended for overhead, working capital, and general corporate purposes. The underwriter is Kiley, Andrews & Bradley, Inc., 23 West St., New York 10006.

C A R D B R A I N M E M O R I E S, INC., 205 Newmarket Ave., Newmarket, Mass. 01845, a company which designs, manufactures, and sells memory systems for use in digital equipment, listed to register 100,000 shares of common stock. Proceeds, at \$10 per share, intended for the development of three product lines, creating a manufacturing center, and continuing a program for research and development, and marketing of memory products. The underwriter is Perry & Associates, Inc., 140 Broadway, New York 10007.

C O M M U N I C A T O R S N E T W O R K S, INC., 108 Eddie Allen Rd., Metairie, Fla. 33901, a company which designs, manufactures, and markets a general purpose computer system, and integrated equipment and systems for use in the data communications industry, listed to register 250,000 shares of common stock. Proceeds, at \$7.50 per share, intended for the development and operating expenses, and for further development, operations, and marketing of the product. The underwriter is Perry & Associates, Inc., 140 Broadway, New York 10007.

P R O G R A M M E R S, INC., 21 S. 16th Street, Suite 100, Philadelphia, Pa. 19103, a company which designs, manufactures, and markets a fast-moving bio-med-oriented computer co.

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STRATEGIC DATA CENTERS, INC., 25 West 46th Street, Suite 100, N.Y. 10036, a company which designs, manufactures, and markets computer systems, listed to register 100,000 shares of common stock. Proceeds, at \$10 per share, intended for working capital, leasehold improvements, and other corporate purposes. The underwriter is Perry & Associates, Inc., 140 Broadway, New York 10007.

FACILITIES ALSO IN WASHINGTON, D.C.

# •Time-Sharing Firm Installs First of Seven PDP-10s

**BOSTON,** Mass. — Computerly, Inc., the commercial time-sharing subsidiary of North American Computer and Communications, has announced the first of seven computer systems scheduled for the eastern half of the United States this year.

The first of the PDP-10 systems, manufactured by Digital Equipment Corp., is housed in Computerly's newly completed facilities in Boston's Government Center renewal area.

Computerly says that it will offer a full range of time-sharing services to engineering, financial, insurance, and educational organizations.

The PDP-10 installed in Boston features a 48K word memory, a disk drive, five DEC tape units, two magnetic tape units, printing and card-handling equipment, and a digital plotter. Initially, this installation will accommodate approximately 60 users simultaneously, according to Computerly.

## Optical Reader to Tape System Service Ready

**DALLAS** — A new computer input automation service, called Optimization and using an optical reader, is now available to subscribers in Chicago, Indianapolis, Milwaukee, Minneapolis, St. Paul, and surrounding metropol-

itan areas, who require typed or printed data to be read, translated into computer language, and recorded on magnetic tape for immediate computer processing.

Offering this new service is Scott Corporation S., located at 4621 Scott St., Schiller Park, Ill. Corporation S., a Dallas-based company, is devoted exclusively to optical character recognition (OCR) and system and software services.

The Optimization service in Chicago uses an Electronic Reins Computing Reader manufactured by Recognition Equipment Inc.

The equipment is a large-scale optical character recognition system used by organizations with very large volumes of computer input such as major air lines and credit card companies.

Even when original documents cannot be read directly, paper can still be read on standard electric typewriters and converted to tape optically at less cost and with more accuracy than by conventional keypunching operations, according to the company.

**Spyrus Opens Univac Midwest Service Center**

**CHICAGO** — A large computation and data processing service center in the Midwest has been opened in suburban Oak Brook by Spyros Corp.'s Univac Division.

Known as the Univac Midwest Service Center, the facility utilizes a Univac 1108 computer system as the keystone of its data processing services. The Univac 1108 can be programmed to process programs originating anywhere in the United States.

The new facility is one of a chain of new service centers, equipped with advanced equipment, being established by the Univac Information Services Division (ISD) throughout the United States. A similar center was opened in San Francisco two months ago and another one will be opening in Phoenix, Ariz. This fall, the Univac Communication lines will connect the Midwest Computer Center to all of the ISD Centers in two in downtown Chicago.

The Univac 1108 computer system, other computing equipment at the Center includes a Univac 418 Computer System, 10 high-speed memory drums, 20 magnetic tape units, two Fastar magnetic tape tape units, three Univac 1004 Systems, a high-speed printer, and a variety of other equipment.

## Time-Sharing on 360/50 Available in Northwest

**PORTLAND, ORE.** — React, the computer time-sharing system developed by EDP Central, Inc., is now on-line and in operation.

React, president, React service, has installed a Univac 9200 to expedite tax billing, general accounting, and payroll processing; King's Food Host, Inc., has installed a Univac 9200 for delivery in April, to be used for general accounting functions; Universal Systems Institute, New York, has ordered a Univac 9200.

## Services

Under the React system, subscribers use the computer through desk-size typewriter terminals located in their own offices.

Already on order for fall installation is a bigger computer, an IBM 360/65.

When on-line, Brotherston said, it will handle twice the number of users and will double storage capacity of programs to be batch processed.

## Printout Duplication Service Added in Jersey

**CHERRY HILL, N.J.** — United Systems Inc.'s new headquarters will house the company's data processing service supported by an IBM 360/65.

A computer printout duplication service has been added using a Xerox 2400 Continuous Printer.

The Xerox printer accepts 15 in. wide continuous-feed computer printout and makes any desired number of duplicate xerographic copies in a compact, manageable 11 in. by 8½ in. format automatically collated and ready for distribution.

## Processing Available in Seattle Region

**SEATTLE, WASH.** — The Seattle office of United Data Processing has begun full-scale operations with delivery of its first IBM 360 Model 30.

Among the data processing services being performed are utilization analysis, management, automotive parts inventories, accounting systems for manufacturing and distributing concerns, and professional association membership reporting for Seattle-area clients. UDP, founded in 1958, is owned by Randolph Computer Corp. of New York.

## Niagara Frontier Covered

**BUFFALO, N.Y.** — Time-shared computer service to commercial and scientific interests throughout the Niagara Frontier region will be offered by Computer Fast Group, Inc., according to Randolph A. Marks, president.

This new computer service will result from CTG's association with Applied Logic Corp., Princeton, N.J., developer of the AL/COM Time-Sharing Network.

CTG will continue its regular batch processing computer service, operational in the Buffalo-Rochester-Toronto community since 1966.

Numerous customers will be served simultaneously by AL/COM's large computer facility at Princeton. Hook-up is via input/output terminals operating over leased telephone lines.

## Computer Tape Leasing Service Expanded in Pa.

**PHILADELPHIA** — In a program designed to help business managers conserve working capital, MACS Computer Accessories, Inc., has expanded its computer tape leasing service and made it a major function of the data processing supplies firm.

MACS will buy a company's existing tape library, then lease it back at a cost lower than that

for which the company itself could properly maintain it.

Tape leasing is designed to offer costly computer tapes through rental rather than purchase, allowing a company to adjust its tape library to meet fluctuating needs.

Louis DeSanto, president, says that leased tapes are delivered in like-new condition, and are guaranteed to perform efficiently or be replaced.

In addition, tapes can be reconfigured to the exact track and density configuration under which they will perform.

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## Orders and Installations

Rutgers University, New Brunswick, N.J., has ordered an IBM 360/67 to be used for research projects ranging from studies of zodiacal light to analyses of oceanic currents. An IBM 1130 will also be tied to the new computer.

Fuji Bank of Tokyo, Japan, has ordered a Univac 1108 Multi-processing Computer. Contract value is at most than \$5 million, from Spyros Rand Corp., for use in processing savings accounts and handling domestic exchange operations. Fuji also has another Univac 1108, and three Univac 418 systems.

The Academic Computer Technology, Salt Lake City, Utah, has installed a Univac 9200 that will, in the next three to six months, be beefed-up to a 9300 system with three tape drives. The system will be used primarily as a laboratory object machine for computer programming instruction.

Riley's Database International, Ltd., Calgary, Alberta, has ordered a PDP-10 computer system from Digital Equipment of Canada, Ltd., for on-line access to its petroleum well information library.

Decision Technology Inc., Cambridge, Mass., has ordered a Control Data 3150 computer system for on-line stock market analysis.

Applied Logic Corp., Princeton, N.J., has installed a Digital Equipment Corp. PDP-10 computer in its AL/COM computer center which serves time-sharing customers "coast-to-coast."

Ohio Steel Tube Division, Copeland Steel Co., Shelby, Ohio, has installed an automated order entry and inventory control system utilizing the Friden 2201 Flexowriter, with double auxiliary tape punch.

Silent Inc., Houston, has ordered an NCR Communications Computer installation to serve in 14 offices located in Texas, Louisiana, Arkansas, and Tennessee.

The Family Security Insurance Co. of America, Fort Worth, Texas, has purchased a Univac 9200 computer system for use in





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## ACM &amp; Its Dollars -- Part 3

## Is ACM Membership Really a 'Bargain'?

By Alan Taylor

In previous articles in this series we have considered the ACM's financial situation by comparing it with what it was supposed to be according to the budget. This may be, however, a little bit one-sided. The fact that a society's activities are not accounted for in its budget is a condemnation of its administrative process. But the situation could be overlooked if it meant that the members were getting their money's worth. After all, societies are for members, not members for societies.

The point was very well put by ACM Treasurer Walter Hoffman at the emergency council in February, and in earlier reports. He said: "It is clear the ACM is one of the biggest bargains imaginable. If we had checked last May, we should have seen that members were getting \$35 worth of services."

With this in mind, the next phase of the ACM investigation was to see what the members were getting.

## Dues Kept at \$25

Membership in the future apparently will provide for an annual fee of \$25, membership in a chapter, and two free periodicals, the *Communications of the ACM* and either the *Computing Reviews* or the *Journal of the ACM*. The *Technical Survey and Tutorial Journal*, as far as the average member is concerned, these are the membership benefits.

Naturally, ACM does do other things. It subsidizes new chapters (with a maximum of \$1,000), provides special interest committees for about a year until they are able to form special interest groups. But these are not membership benefits as

such, no matter how worthwhile they benefit groups of members. In some cases even the conferences and forums appear to be subsidized to ACM members in good standing.

It may be that all this eventually does help the general membership. But it certainly isn't a membership benefit.

To evaluate the cost of membership really gets us to the checked off item on the cost of the *Communications*, the cost of *Computing Reviews*, and how much support the member gets through his local chapter.

## Communications Costs \$10,300

Evaluating the cost of the *Communications of the ACM* is not difficult. The financial reports showed editorial salaries,



books, etc., and also showed the income that the society obtains from the *Communications*. The income is quite substantial, and the costs are broken down in terms of sales to nonmembers.

According to ACM figures, the cost to the society of *Communications* is about \$10,300 annually. Splitting this between the members comes to about 50 cents per member.

Similarly, evaluating the cost of *Computing Reviews* is, on the surface, fairly easy. But there is a problem involved

because *Computing Reviews* recently became a monthly. The change from quarterly publication was based in large part on a grant given by the National Science Foundation, etc. It is currently still monthly, even though that support has now been withdrawn. (Also as a result of the grant, the *Journal* added a number of features, including coverage of doctoral theses, etc., which may be worthwhile to the membership, but not me.)

However, it appears that the *Computing Reviews* in 1967-1968 cost the society \$52,391, or the average member about \$2.60. If the National Science Foundation subsidy were not included, the cost would be about \$86,391, or \$4.32 per member.

## Chapter Aid

The only other substantial benefit that a member receives is the support given to his chapter. That support is called entitled "Chapters and Committee Aid."

On investigation, however, it turns out that the committee aid is apparently substantially more expensive than chapter aid. Indeed, chapter aid amounted to only \$1,000 all told for the year 1967-1968. Evaluating this, the benefits to the member as a result of becoming a member are about 12 cents to his chapter.

## Figures Show No Bargain

If, indeed, membership in the ACM is a genuine bargain, then some new figures will have to be produced to show it. The current financial reports indicate that only 80% of the dues, plus the profits from the joint computer conferences and

Chapter Aid Communications	\$0.12	\$4.94
Computing Reviews	\$0.50	\$4.32
Identifiable Member Benefits		
\$4.32		

## ACM Membership Benefits as Recorded in ACM Financial Figures

other activities (which this year amounted to \$6 per month), are going into administrative costs and subsidizing activities in which a member may not wish to participate and from which he does not directly benefit.

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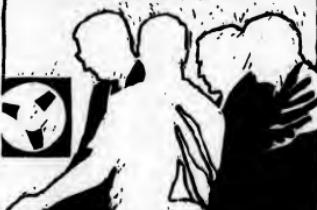
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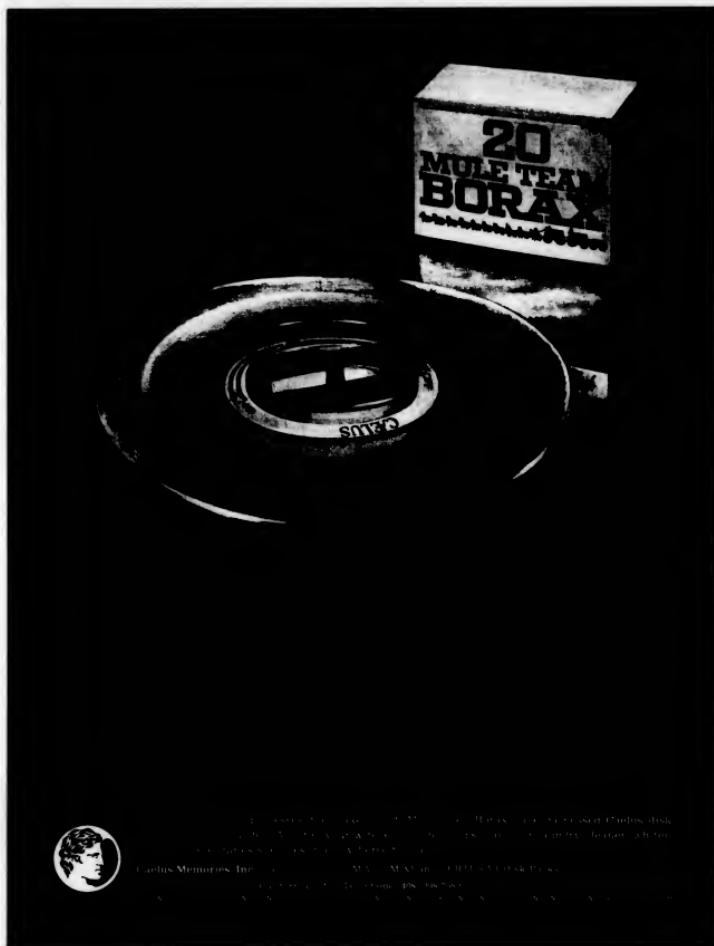
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